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ABSTRACT

National Education Goal 5 states that by the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship. To date, education reform has focused on international competition and the need for a skilled work force in order to compete without lowering the U.S. standard of living. However, there has been no research that shows that the skills of U.S. workers are actually lower than those of workers in other countries or, if they are, what difference it makes in this country's ability to compete. Research is proposed to find out what is needed to be known to compare skills. That research would include a definition of basic literacy; the amount of occupation-specific skills possessed by the U.S. work force and how they compare to those of other nations' workers; workers' values, beliefs, and attitudes; workers' opportunity to develop skills; how work is organized; and what difference skills make and why. Data for this research could be reported for the first time in fall 1992, providing a baseline for the trend data in future reports. In future years, the United States could use several major international studies currently being organized and sponsored by organizations such as the World Bank, the Educational Testing Service, and the Organization for Economic Cooperation and Development. The United States could also stage a research program for the next 3-5 years to answer questions about workers' skills and their effect on economic productivity. A budget for such a research program would be about $1 million per year. (KC)

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NATIONAL EDUCATION GOALS PANEL

THE GOAL 5 TECHNICAL PLANNING SUBGROUP ON INTERNATIONAL WORKFORCE SKILLS

Report to the National Education Goals Panel

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NATIONAL EDUCATION GOAL 5

Goal 5: **By the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.**

Objectives:

- Every major American business will be involved in strengthening the connection between education and work.
- All workers will have the opportunity to acquire the knowledge and skills, from basic to highly technical, need to adapt to emerging new technologies, work methods, and markets through public and private educational, vocational, technical, workplace, or other programs.
- The number of high-quality programs, including those at libraries, that are designed to serve more effectively the needs of the growing number of part-time and mid-career students will increase substantially.
- The proportion of those qualified students (especially minorities) who enter college, who complete at least two years, and who complete their degree program will increase substantially.
- The proportion of college graduates who demonstrate an advanced ability to think critically, communicate effectively, and solve problems will increase substantially.

THE CHARGE TO THE TECHNICAL PLANNING SUBGROUP ON INTERNATIONAL WORKFORCE SKILLS

Background

The United States can compete with other nations without having a skilled workforce. We can compete by lowering the value of the dollar, lowering real wages, sending manufacturing offshore and reducing workers' benefits. There is an almost infinite number of ways in which we can compete, in other words, by lowering our standard of living to match that of other low skill competitors until we are competitive with them in world labor markets. The United States has been doing exactly that for two decades.

Though we certainly can compete by lowering our wages -- and are in fact doing so -- the public is beginning to realize that competing that way will make us a poor country. It is very doubtful whether the current education reform movement would be underway or whether there would be any national education goals at all were it not for the growing concern about our economy. But maintaining our status as a high wage country depends on having a population that is highly skilled. Which is why the crucial question now is how the skills of our people compare to the skills of workers in countries in which real wages are higher than in the United States, and to those in countries in which real wages are going up rather than down, as they have been doing here for years.

Are the skills of our workers inferior to those of workers in the countries with which we compete? If the skills of our workers are in fact deficient when compared to those of workers in other countries, what difference does it make in our capacity to compete with those countries?

These are not trivial questions. If the skills of our workers are equal or superior to those of workers in major countries with which we compete, then much of the underlying rationale for the national education reform effort is gone, or at least gravely weakened. If their skills are indeed weaker, but that weakness accounts for little if any of our competitive problems, then we are still barking up the wrong tree. Suppose, though, that we find out that our skills are in fact deficient and those deficiencies really matter. Then it becomes very important to figure out how those competitors produced those skills and created the circumstances in which having a skilled population pays off in the bottom line of economic performance. If, in other words, they are in fact doing better than we are, then it behooves us to figure out how they did it and how to do it better. In modern business parlance, we need to benchmark the competition.

But is it the differences in skills that explain the differences in real wages, or is it something else? What can business people tell us about the ways in which skill differences make a real difference on the bottom line? Suppose now that we discover that skills really do make a difference. The question then is how and under what conditions? We know that there are some countries – like Ireland and India – that have a surplus of educated and skilled people who end up leaving the country to find work. What kind of data can we gather that would enable us to put it all together – to figure out what combination of education policies, training policies and business policies produce the best economic results?

These are the questions this Technical Planning Subgroup was asked to address. They are among the most important questions the Goals Panel will deal with, because they get to the heart of the matter, the relation between our national investments in education and training and the results of those investments in terms of our ability to compete in the economic arena.

What Would We Have to Know to Compare Skills and the Opportunity to Acquire Skills?

Basic Literacy

The foundation of technical and professional proficiency is basic literacy. So the first question we need an answer to is how the skills of our workforce in basic mathematics, native language and science compare to the literacy of our competitors' workforces in those subjects. In particular, we need to know not how literate these workers are in these school subjects, but about their capacity to actually use these skills in real-life settings, because that is what counts in the workplace. It would be especially helpful if we could collect the data in such a way that we could make comparisons among countries industry by industry, for people holding similar jobs in different countries, for people who have been to school for the same number of years, for different levels of opportunity to acquire literacy skills at the workplace, and so on. With this kind of information, we would not only know a lot more about where we stand, relative to other countries, but we would also have some information that would help us figure out what accounts for high levels of literacy, so we could do something about the problems that are revealed.

Occupation-specific Skills

Beyond basic literacy, of course, are the specific skills required to do the work of each of the myriad trades and occupations that comprise the whole economy. The idea of actually measuring directly the skills of workers in all these occupations and trades, country by

country, and industry by industry is very daunting. No one knows how to do it. It would take years to develop the measures, more years to get agreement among many nations on the actual instruments to be used and tens of millions of dollars to administer them. That is, if it could be done at all – the technical problems of design and the political problems involved in asking tens of thousand of workers the detailed questions that would be required may be insuperable.

But we think that it is possible to learn a great deal about how the technical and professional skills of our workers compare to the technical and professional skills of workers in other countries without engaging in direct measurement of those skills, and we think it is essential to do so. It is the heart of the question.

Several anecdotes will illustrate the point. A Siemens executive in Germany, for example, recently told a group of U.S. visitors that the skills of the workers hired in a new Siemens plant in the U.S. have skills much more comparable to the skills of those in a new Siemens plant in Thailand than to workers in plants operating within Germany. On another occasion, executives in a leading German machine tool company told visitors that that company cannot sell the top of their line to American firms because the low skills of the American workers make it prohibitively expensive to train them to use the machines properly. On still another recent occasion, a general manager of a leading Italian building materials firm commented that the workers in their plant in the Philippines were more skilled than those in their plant in the United States.

These random comments may be quite unrepresentative. A former Westinghouse executive, for example, told a member of the committee that while their German workers were more skilled when they were hired, there was little difference between the skills of long tenure employees, and their American employees required less supervision and were more comfortable with taking initiative. Clearly, American workers in many industrial fields are as highly skilled as any in the world. But if the majority of these stories reflect broadly held views of international managers and senior technical people in some key industries, including those based in the United States, then we can confidently expect good jobs to continue to flow to other countries. It is essential, then, to find a practical way to gauge the technical skills of our workers compared to those of workers in other countries, and if possible, to find out how employers look at those skills differences, because it is these decisions employers make that will determine where good and bad jobs are located throughout the increasingly integrated world economy.

On a closely related point, many of the countries with which we compete that are known to have a high level of technical competence among the members of their front-line workforces have well-established systems of universal qualifications for most front-line jobs. Students coming out of high school in these countries have a strong incentive to participate in and succeed in the training programs that lead to these qualifications so they can get the good

jobs that require them. One way to get good information on the skill levels of workers in other countries is to find out just what they require by way of universal qualifications for the jobs in their economy. What are their standards for which jobs? Which countries have the highest standards and what are they? There is a lot of interest in this country now in establishing such standards here. Reliable knowledge about what those standards are in other countries would enable us to establish standards on a par with the most rigorous standards in the world. In that sense, we should approach this task in the spirit of benchmarking, not only finding out what their standard is, but getting the information we need to figure out how to improve on their standard-setting process.

Values, Beliefs and Attitudes

When employers in this country and abroad are asked about the qualities in workers that matter most to them, they often begin their response not by talking about knowledge of English or math, or the skills involved in operating a particular kind of equipment, but they talk instead about things like showing up on time, sticking to a task until it is done, willingness to work hard, ability to work with others in a team, and readiness to take some initiative to solve a problem without being told to do so. It's not that these employers view basic academic skills as unimportant, but rather, as some put it, that "It doesn't matter whether they can spell if they won't even show up for work." Many employers expect these skills to be developed by schools and many educators point out that the best place to learn them is in a well-managed workplace. There is, no doubt, some truth in both views, but the point here is that an international comparison of work-related skills would be sadly lacking if it did not include skills of this kind.

Opportunity to Develop Skills

Knowing how the basic literacy and technical skills of our workers compare to the skills of workers elsewhere tells us only part of what we need to know. Assume for the moment that the skills of our front-line workers compare unfavorably to those of workers in certain other countries. Surely, as just noted, one explanation for such differences in skill levels might be differences in the opportunity to acquire the needed skills after being hired. So we believe that it is important to report on the opportunities people have to acquire the basic literacy and technical and professional skills they need in this country and abroad, in the workplace, from union sources and from formal educational institutions. Put this way, though, it might appear that we are mainly interested in the opportunities for individuals to take courses. While that is important, it is not the whole picture. It is necessary to determine how firms are organized to provide new skills, the size of the investments they make in skill development, and how those investments are allocated across classes of employees. It will pay to find a way to gauge the extent of non-formal, on-the-job opportunities to acquire

skills, because these settings can be even more important than formal coursework in developing the skills that really matter in determining the economic outcome.

Work Organization

In some firms work is organized in such a way that most front-line workers do not need high skills in order to do the work they are expected to do. In others, it is organized in a way that demands high skills. As we pointed out in the introduction to this report, it is possible to compete using either form of work organization, but we now know that the first form leads to low wages and the second to high wages. Knowing how work is organized, then, is crucial to understanding why workers' skills may be low in one country and high in another – in the simplest terms, we can expect skills to be low in firms, industries and countries where there is very low demand for skilled workers because the work is organized in such a way as to avoid the need for skilled workers.

Put in another way, low productivity is not necessarily the result of poor worker skills. Alternatively, it may be the result of the way managers choose to organize the work. How they organize the work determines the demand for high skills, the motivation of front-line workers to acquire those skills and employers' incentive to offer the necessary training. For all these reasons, we believe that when we are comparing skills of workers in different firms or countries, we need to know something about the differences in how work is organized in the firms or countries being compared.

What Difference do Skills Make, and Why?

We began this report by saying that the current interest in education reform is due mainly to a concern that our economic well-being is threatened by inadequate skills in our workforce. If that is so, then the National Education Goals Panel would be well served by having a set of economic indicators that it could use to gauge the effectiveness of the education reform program. These should include such data as real wage rates, changes in real wage rates, productivity and productivity growth, the rates at which managerial and professional jobs are growing or declining as a proportion of all jobs, rates of employment and unemployment and changes in those rates, relative income inequality, returns to investment in education (especially to advanced education) and so on. We think that comparable data should be included in every annual Goals Panel Report. This should make it easier for the American public to compare progress on our education goals to the progress other nations are making in education and to follow the relationship between progress on education and economic progress over time, both here and in other countries as well.

The relationship between skills and economic outcomes is anything but simple, though. Many things other than the skills of the workforce will influence economic growth,

productivity and income distribution, from fiscal and monetary policy to public and private investments in research and development. In fact, in the short run, it is highly likely that factors such as these will have a greater influence than investments in skill development, because it takes a long time for such investments to result in better economic performance. In the long run, though, economic research shows that investments in skills have a higher payoff than any other form of investment. So, while we believe that the Goals Panel reports should include economic trend data, we also think that the report should include a caution to the reader not to expect quick results on the bottom line.

But, even in the long run, higher skills seem to lead to better economic outcomes only under certain conditions. What, exactly, are those conditions, and how do they combine to produce the outcomes we want and the ones we do not want? Take two food processing firms, say, or manufacturers of kitchen cabinets. Let's say that one uses a mostly highly skilled staff and the other uses a mostly low-skilled staff. The first pays relatively high wages and the other pays relatively low wages. Under what conditions will the first get the productivity gains that will enable it to compete more successfully even though it is paying higher wages than the second? Under what conditions will the low-wage employer be likely to beat the high wage employer every time? Getting the answers to questions like these is important because, otherwise, we are likely to be misled by the data, drawing conclusions about what our policies ought to be that are in fact unwarranted.

In the following section, we address the issue of how we would organize the collection and analysis of data in order to shed some light on the questions that have been raised in this section. The chart on the next page shows how the data needs that we just identified are satisfied by the studies we propose. A given study might take several years to complete. In some instances, its result might become available over the course of two years rather than one. Each of these data gathering efforts can be repeated at regular intervals to reveal trends over time. In the columns on the right of the chart, a "1" indicates when reports would be available from the first time a recommended study is done, and a "2" indicates when reports would be available from the second time it is done.

One last point concerning what is important to know. The discussion so far has proceeded as if one could and should characterize the average skill levels of whole countries and, having done so, compare them to the United States. Surely we can learn some important things by doing so, but we would miss a lot that is very important. It is very likely, as we noted above, that the skills of American workers are among the highest in the world in certain industries and certain firms. It is also entirely possible that, in some other industries, we compare badly to workers in other countries. The plan we have put together would, among other things, help us to learn not only from the experience and policies of other countries, but also to learn from our own experience by identifying cases in which our performance is world class, so we can apply what has worked for us in those cases to arenas in which we are doing less well.

	Basic Literacy	Occupation-Specific Skills	Values, Beliefs & Attitudes	Opportunity to Develop Skills	Work Organization	Impact of Skills on Productivity	Economic Outcomes	Report Date 1992	1993	1994	1995	1996	1997-98	1999-2000
Economic Indicators	—	—	—	—	—	—	*	1	2	3	4	5	6	7
Meaning of Work Study	—	—	*	—	—	—	—	1	1				2	
ETS/Statistics Canada (Adult Literacy)	*	—	?	*	*	—	—			1				2
World Bank	—	*	*	*	*	*	*			1				2
OECD Measures of Employer Training	—	—	—	*	*	—	—							
Industry Case Studies	*	*	*	*	*	*	—		1	1	1		2	2
Interviews of Managers	*	*	*	*	*	*	—		1	1			2	
Occupational Skills Standards Study	—	*	—	*	*	—	—		1	1	1		2	2

A Plan: (1) For this Fall

The economic performance data described above could be reported for the first time this Fall, providing a baseline for the trend data supplied in future reports. Since there are no data to support reports on most of the other indicators we think are important, there will be very little to report on international workforce skill comparisons in the current year. There is one study, however, on the Meaning of Work, from which data are available that could be reported this Fall. This study, conducted by a consortium of researchers in the U.S., Europe, and Japan, asked questions of an international sample of workers concerning their values, beliefs and attitudes about work. As we pointed out above, employers often show a greater interest in these kinds of attributes than in the kinds of skills that are more often measured. The data will be reported out by age, gender, whether the respondent is white collar or blue, and so on. We believe a report on this study would be of significant value. This study should be repeated at regular intervals to provide trend data.

A Plan: (2) For Data to be Reported Beginning Fall 1993

Two categories of studies could be undertaken during the next few years that would yield data of considerable value to the Goals Panel. First, the United States could piggyback on several major international studies sponsored by organizations such as the World Bank, the Educational Testing Service and Statistics Canada, and the Organization for Economic Cooperation and Development, which are still in the early planning stages. Preliminary conversations with researchers at these agencies indicate strong interest in U.S. participation, and a willingness and capability to collect the kinds of information which would enable the Goals Panel to make international workforce skill comparisons.

Second, a staged research program could be organized at a fairly modest level during the next three to five years to answer additional important questions about worker skills and training and their effect on economic productivity. A variety of methods, such as international case studies of specific industries, structured interviews with multinational employers, and descriptive studies of professional and technical standards in different occupations and nations are proposed. Together the proposed set of research studies will enable the Panel to measure the types of "knowledge and skills necessary to compete in a global economy," and to identify where disparities currently exist between U.S. workers' skills and desired levels of training and technical expertise. These studies are briefly summarized below.

U.S. Participation in Planned International Studies

The World Bank. The Technical Planning Subgroup recommends that the U.S. participate in a Survey of Worker Training in the manufacturing industry which is being planned by the World Bank in seven countries: Japan, Singapore, Korea, Mexico, Colombia, Malaysia, and India. The study will survey 400–500 manufacturing companies in each country and a sample of workers in each company in order to provide information about the relative effects of different forms of training on productivity. The study will investigate the most important factors that shape firm and worker incentives to train, as well as the productivity outcomes of those training investments. If the U.S. were to participate in this project, Census data could be used to select manufacturing firms to participate in the study. Since the Bureau of the Census already collects information on U.S. companies' sales, production, capital stock, employment, etc., the World Bank questionnaire could be limited primarily to questions regarding worker training, thereby decreasing the data collection burden on manufacturing firms and enhancing the likelihood that they will agree to participate.

International Study of Adult Literacy. The Technical Planning Subgroup also recommends that the U.S. participate in the International Study of Adult Literacy currently being planned by the Educational Testing Service in collaboration with Statistics Canada. The Subgroup considers this study the best opportunity in the near future to measure how the literacy skills of American workers compare with the literacy skills of workers elsewhere. As initially planned, this study would assess Prose, Document, and Quantitative literacy skills of adults in six countries (Germany, France, Canada, Mexico, Japan, and the United States), using a modified version of the National Adult Literacy Survey previously administered in the United States. The Educational Testing Service has expressed interest in working with the Goals Panel to identify specific workplace-oriented literacy skills that could be added to the proposed assessment, such as Scientific and Technology Literacy skills, and in collecting relevant cross-national information on workers, such as training and qualifications, occupation, industry, and earnings.

Organization for Economic Cooperation and Development (OECD). OECD has expressed interest in working with the Goals Panel in two areas of mutual interest where cooperation might be especially beneficial: a study of adult and lifelong learning and an education indicators project. The Education Committee of OECD and the Center for Educational Research and Innovation (CERI) will be conducting a number of studies collectively called, "Education and Training 16+." Two studies are particularly relevant to the Panel's proposed work: (a) Further Education and Training as Investment; and (b) Assessment and Recognition of Skills and Competencies. OECD notes that in the context of increasing international economic competition, there is widespread interest in adult literacy, workplace training, continuing vocational education, and general adult education, although it is evident that improvements in data collection and reporting are needed to describe the situation in different industrialized countries. A cross-national study will commence in 1992,

which will assist countries seeking to adopt further education and training accounting and reporting practices. It is scheduled for completion in early 1994, and the Technical Planning Subgroup encourages U.S. participation.

Staged Research Program

Benchmarking Occupational Skills Standards. We propose an initial study to describe typical occupational skills standards in major industrial countries that have universal standards at the entry level and above for occupations and trades not requiring a four-year college degree. There is great value in getting started on this right way. First, as we said above, it is a very efficient way of getting a fix on what our competitors' views are of the skills it takes to do the key jobs in the economy. But even more pressing, there is gathering momentum right now in this country to begin the development of a system of occupational standards. The people who will be involved in creating the standards will be greatly aided by concrete examples of the kinds of standards that other countries have established and good descriptions of the systems they use to establish those standards. Should the initial studies prove as valuable as we expect, it may be useful to expand their scope in later years in one or both of the following ways: (1) to include more occupations and trades at more levels and in more countries; and (2) to include explicit comparisons of those standards with the de facto standards in the United States. The initial studies might well be funded and managed by setting aside some part of the current grants competition for development of occupational standards run by the Department of Education for the purpose just described.

Case Studies of Specific Industries. In some industrial arenas - semiconductor processors, software, biotechnology and advanced commercial aircraft come to mind - American technology, management and workers are among the best in the world or are in fact the world's acknowledged leaders. In others, we have either lost a lot of ground or have been completely overwhelmed by the competition. Within the United States, one firm might be growing steadily year by year and another be on the ropes. How much of the difference between success and failure is explained by differences in skills, how much by other factors such as management and the way work is organized, and how much by the way these and other factors interact with each other?

A 1986 quantitative case study conducted by the National Academy of Sciences compared flexible manufacturing systems in Japan with others here in the United States. It found that the Japanese were able to bring their systems into operation much faster and that, once operational, they suffered much less downtime than the American systems. The researchers attributed much of the Japanese success to the skills and training of the Japanese staff. This study has been widely cited in the United States, and has had a significant impact on the ongoing policy debate. We propose that it be repeated during the 1993-1994 year to capture recent trends in this pivotal field and that similar studies be undertaken in other

industries, comparing plants in those industries to matched plants in countries such as Japan, Germany and France. At least one of those industries should be one in which the United States has a leading position. Hard data would be collected on the productivity of the plant and of specific steps in the production process, the types of machinery used, machine downtime, reject and rework rates, the skills of the workforce, the nature and intensity of on-the-job training, and so on. The objective would be to understand the causes of productivity and quality difference among plants and between countries and, in particular, the role of skills and training in contributing to such differences. Studies of this type, in our view, are essential because many business people find these kinds of stories – documenting just how and why costly investments in skills pay off in some circumstances and do not in others – far more persuasive than the abstract numbers and conclusions that typify other kinds of research reports.

Interviews of Managers Familiar with the Skills of Workers in Many Countries. The most efficient way to assess the relative skills of workforces in different countries is to interview individuals who have intimate knowledge of workers and production processes in more than one country. Two types of experts should be approached:

- Executives of multinational companies who have managed plants in both the United States and abroad. Comparisons of skill levels across branch plants within the same multinational corporation are of great interest, because it is such comparisons which influence the multinational's decisions about the mission and scale of each of its branch plants and whether to out-source the production of specific components.

- The technicians and engineers who install and maintain capital equipment (such as earth moving equipment, paper making machinery, textile machinery, machine tools and industrial robots) used in many different countries. In many cases these technicians train the local employees who operate the equipment. They visit plants all over the world and thus can give an objective outsider's assessment of the skill levels of the workers who operate and maintain the equipment their company sells.

Respondents in these studies would be assured that they and their company's identity would be kept confidential.

This research strategy is path-breaking in that, to our knowledge, it has not been used in this field before. So we would proceed in two phases. During the first, we would determine the feasibility of a wide-ranging approach by concentrating first on a few industries. The first phase would also be used to identify the most important questions to be pursued in the second phase. In this way, we believe the country would make the most efficient use of available resources.

Phase 1: Semi-Structured Interviews

A few industries, at least one of which is one in which American workers are known to have world class skills, will be selected for semistructured interviews. Interviewers with expertise in the targeted industries would be sent into the field for extended conversations with executives, technicians and engineers. Though the conversations could follow whatever route seemed most productive, the interviewers would be given a list of questions to guide them. Among them would be questions about the ability of workers in different nations to maintain technologically advanced equipment, about the ability of workers in different nations to make suggestions that contribute to the continuous improvement of the process or product, about the time it takes to train workers in different countries to operate and maintain new piece of equipment, about quality standards and reject rates in different countries, about equipment downtime and the reasons for that downtime, and so on. This phase should produce some powerful stories that will graphically illustrate the challenge this country faces, while at the same time show how some companies are rising to that challenge.

Phase 2: Structured Interviews that can be Replicated to Produce Trend Data

But the problem with the results of phase one is that it will be hard to know how representative the results are, because the same questions will not be asked of all people interviewed and because only a few people in a few industries will have been interviewed. The work done in phase one will enable us to identify the questions with the highest payoff, so in phase two we propose to conduct the interviews over the phone, using a standardized, neutrally worded set of questions. Many more interviews could be conducted this way, involving a careful selection of firms and industries, so that the results would enable us to make good comparisons of industry in this country with industry in other countries with which we compete.

Perhaps most important, this method could be easily used again after a few years had gone by. People holding very similar jobs in the same industries in the same countries could be interviewed again, so that we could see whether this country was improving or declining relative to other countries with respect to the skills of our workers as seen through the eyes of managers all over the world.

A Budget

We have given considerable thought to the construction of a data collection and analysis plan that could be implemented at a modest cost. Rough estimates of the cost of the major components of the plan are given below. The estimates below are for the cost of one cycle of data collection, analysis and reporting. The chart we supplied above shows what we would suggest as appropriate cycle time for each activity. For the economic indicators, for example, the cycle would last only a year, and we would suggest that these indicators be updated and reported every year. The chart shows the adult literacy survey being repeated on a five-year cycle. The industry case studies would also be repeated on a five-year cycle, but the results of any given cycle would be repeated over a three-year period.

1.	Economic Trend Data	$ -0-
2.	World Bank Study	$ 600,000
3.	International Study of Adult Literacy	$ 2,000,000[1]
4.	OECD Studies	?[2]
5.	Case Studies of Specific Industries	$ 750,000
6.	Interviews of Managers: Phase 1	$ 100,000 - 200,000
7.	Interviews of Managers: Phase 2	$ 300,000
	TOTAL cost for one cycle:[3]	$ 3,750,000+

[1]This assumes that the United States assumes $1.5 million of the $2.5 million projected cost for central management of the study and $ .5 million for the cost of data collection within the United States.

[2]The costs of the OECD studies are not known at this time.

[3]Given the assumptions made in the chart, this would come to a little over $1 million per year.

The Bottom Line

What the Country Will Get if These Studies Are Done

Americans don't like to be last. We prefer to be first. If it turns out that others have established far higher occupational skill standards for their kids than we have for ours, then we will do our best to match them. If it turns out that top managers all over the world prefer not to locate plants here that require highly skilled people and pay good wages, then we will do something about it. If it turns out that those same managers tell us that what they sell breaks down faster and more often in the United States than in Germany and Japan and it takes Americans longer to fix it, then we will rise to the challenge. If our research shows that American managers are slower than managers in other countries to figure out how to beat the competition with highly skilled, highly paid workers, then they will learn. None of these things may turn out to be true. But if just one of them is true, and something is done about it as a result of the studies we recommend, then the less than $2 million a year projected cost will have been amply repaid.

On the Relation Between 'Education' and 'Labor'

This report has been prepared for the National Education Goals Panel. But, because it deals with the relationship between skills and economic outcomes, it has had a lot to say about indicators not only of education progress, but about indicators having to do with the quality of American labor and others having to do with the relationship between the quality of labor and various economic indicators.

It turns out that, just as the country knows less than it should about our students, it also knows less than it should about our labor force. It appears that the U.S. Department of Labor is considering developing an annual report on *The Status of the American Worker*. We strongly encourage the Department to proceed with this plan. With adequate coordination between the National Education Goals Panel, the Department of Labor and the Department of Education, the annual reports of the Goals Panel, the report on the Condition of Education and the planned report on *The Status of the American Worker* could complement one another and the Goals Panel report could count on being able to draw on the data in the other two that presented the best overall picture of the country's progress toward the Goals. In this way, the nation could make the most of scarce resources for data collection and analysis.

The Biggest Bang for the Buck

The data collection and analysis activities we are suggesting can be pursued independently. But, if they are designed and executed as an integrated program of studies, they will produce far more insight into the matters of interest than if they are not. But they will only be designed and executed as a single program of studies if they are managed as a single program. This will not be easy, because these studies are properly assigned to multiple cabinet departments and to multiple units within those departments. What would be required to maximize the return on investment would be an agreement among the various agencies that one agency – or perhaps a senior member of the Goals Panel staff – would take the lead in convening all of the program officers involved to form an informal council of program officers who would meet to create an overall research design in the first instance, and then continue to meet periodically to assure effective implementation of the design.

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